NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

SURFACE DRAINAGE

FIELD DITCH

(ft)
CODE 607

DEFINITION

A graded ditch for collecting excess water in a field.

PURPOSE

To drain surface depressions; collect or intercept excess surface water, such as sheet flow, from natural and graded land surfaces or channel flow from furrows and carry it to an outlet; and collect or intercept excess subsurface water and carry it to an outlet.

CONDITIONS WHERE PRACTICE APPLIES

This standard applies to drainage ditches installed to collect water from a field less than 100 acres per ditch. It does not apply to surface drainage, main or lateral (608) or to grassed waterways or outlets (412).

Applicable sites are flat or nearly flat and:

1. Have soils that are slowly permeable (low permeability) or that are shallow over barriers, such as rock or clay, which hold or prevent ready percolation of water to a deep stratum.
2. Have surface depressions or barriers that trap rainfall.
3. Have insufficient land slope for ready movement of runoff across the surface.
4. Receive excess runoff or seepage from uplands.
5. Require the removal of excess irrigation water.
6. Require control of the water table.
7. Have adequate outlets available for disposal of drainage water by gravity flow or pumping.

CRITERIA

Drainage field ditches shall be planned as integral parts of a drainage system for the field served and shall collect and intercept water and carry it to an outlet with continuity and without ponding.

Compliance with all applicable federal, state and local regulations and ordinances is required. The landowner(s) shall be responsible for obtaining and complying with all applicable permits.

Investigations. An adequate investigation shall be made of all sites.

Location. Ditches shall be established, insofar as topography and property boundaries permit, in straight or nearly straight courses. Random alignment may be used to follow depressions and isolated wet areas of irregular or undulating topography. Excessive cuts and the creation of small irregular fields shall be avoided. State and locally listed prime and significant wetlands shall be avoided.

On extensive areas of uniform topography, collection or interception ditches shall be installed as required for effective drainage.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resource Conservation Service. New Hampshire supplement is underlined.

NRCS, NHFOTG

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Design. The size, depth, side slopes, and cross section area shall:

1. Be adequate to provide the required drainage for the site.
2. Permit free entry of water from adjacent land surfaces without causing excessive erosion.
3. Provide effective disposal or reuse of excess irrigation water (if applicable).
4. Conduct flow without causing excessive erosion.
5. Provide stable side slopes based on soil characteristics.
6. Permit crossing by field equipment if feasible.
7. Permit construction and maintenance with available equipment.

Ditches may be trapezoidal, V-shaped, or parabolic in shape to fit the site conditions.

When surface field ditches discharge into ditches of greater depth, the outfall shall be graded back on non-erosive slopes of other protective measures shall be provided.

Channel Vegetation. Vegetation shall be established according to the recommendations in Conservation Practice Standard - 342, Critical Area Planting.

Spoil Placement. Spoil material shall be spread and leveled so that the surface water can flow into the ditch. If the spoil is to be farmed, it shall be spread so that farming operations will not be hindered.

CONSIDERATIONS

Water Quantity

1 Effects on water budget components, especially relationships between runoff and infiltration.

2 The effect of changes in the water table on the rooting depth for anticipated land uses.

Water Quality

1. Downstream effects of erosion and yields of sediment and sediment-attached substances.
2. Effects on the salinity of the soil in the drained field.
3. Effects on the loadings of dissolved substances downstream.
4. Potential changes in downstream water temperature.
5. Effects on wetlands or other water-related wildlife habitat.
6. Effects on the visual quality of downstream water courses.

PLANS AND SPECIFICATIONS

Plans and specifications for constructing drainage field ditches shall be in keeping with this standard and shall describe the requirements for properly installing the practice to achieve its intended purpose.

OPERATION AND MAINTENANCE

A site-specific operation and maintenance (O&M) plan shall be provided to and reviewed with the landowner(s) before the practice is installed. The plan shall adequately guide the landowner(s) in the routine maintenance and operational needs of the field ditches. The plan shall also include guidance on periodic inspections and post-storm inspections to detect and minimize damage to the drains and outlets.